

Reference Case for estimating the Costs of Global Health Services and Interventions

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Our aim - what do we want to achieve?

*What do we mean by **good costing**?*

Costing is a process of estimation

Example characteristics of a good estimate:

- Precision
- Accuracy

But how accurate and precise is good enough?

Not a gold standard

‘Cost of getting it right compared to the cost of getting it wrong’

But other 'desirable' characteristics

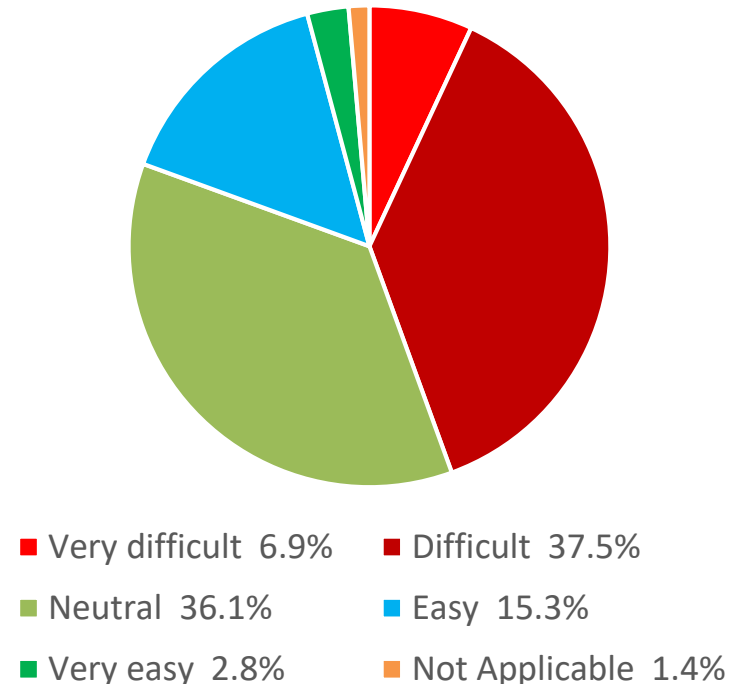
Generalisability and transferability

- Can we apply the cost to other settings?
- *More important to be relevant to context?*

Comparability, reliability and standardisation

- Are cost estimates comparable with one another?
- *Innovation?*

Difficult to apply data to your needs?



Our aim

To improve the relevance, use and quality of cost estimates by:

Ensuring that the process of cost estimation is transparent, so that those using the data can apply estimates widely and appropriately

Framework for producers of cost data to consider how their methodological choices influence the quality and relevance of their estimates, and present data in way that maximises the extent of its use

Reference Case approach and content

IDSi reference case for economic evaluations

1. Set of 'acceptable' principles
2. Methodological guidance on how to achieve those principles (theory and evidence based)
3. Reporting standards
4. Standardisation for specific interventions with additional guidance where available

Achieves our aim by:

- Not a tool, but complements
 - Reference case compatible guidelines/tools
- Context specific
- Rooted in economic *and* statistical principles *and* empirically supported methods
 - Understanding bias and precision
 - Comparing ways of measuring service/ resource use
 - Valuing resources

Bibliometric review: Search Strategy

Search Round #1

Pubmed: 2638 results, 190 selected
Econlit: 387 results, 40 selected
Global Health: 2224 results, 62 selected
Embase: 682 results, 119 selected
IBSS: 123 results, 2 selected
Web of Science: 1951 results, 165 selected

Search Round #2

Pubmed: 896 results, 66 selected
Econlit: 463 results, 28 selected
Global Health: 242 results, 14 selected
Embase: 1667 results, 80 selected
IBSS: 394 results, 17 selected
Web of Science: 1235 results, 57 selected

Manual searches:

DIRUM website: 89 selected
World Bank website: 204 results, 1 selected
WHO website: 196 results, 24 selected
UNAIDS website: 200 results, 8 selected

Abstract review: 749 references

371 irrelevant papers
excluded

Additional snowballing and
manual searches:
45 references added

423 references extracted

Reasons for exclusion:

excluded article type:

- commentary: 19
- conference abstract: 22
- erratum: 1
- protocol: 1
- literature review: 26
- costing tool: 7

unrelated to health care costs: 105

costing methods not discussed: 46

- cost results, not methods: 91
- methods for economic evaluation: 50
- methods for estimating catastrophic cost: 8
- describes use of cost data: 41

abstract unavailable: 7

Costing Tools – not included in the review

HIV tools

- Goals
- Resource Needs Module
- Decision-Makers' Program Planning Tool (DMPPT)
- Future ART Costs
- PMTCT
- Optima
- ASAP HIV/AIDS Costing Tool
- VCT Costing checklist
- AIDS Impact Model for Business (AIM-B)
- Antiretroviral Therapy Unit Cost Spreadsheet
- HIV Testing and Counseling Service Delivery Costing Model (HSDC)
- Key Populations Costing Workbook
- Medication-Assisted Therapy Costing Worksheet
- PMTCT and Pediatric ART Costing Tools (PMTCT/Peds)

TB tools

- TB Impact Model and Estimates (TIME)
- Planning and Budgeting for TB

Other tools

- DemProj
- AIDS Impact Mode (AIM)
- Lives Saved Tool
- OneHealth Tool
- Marginal Budgeting for Bottlenecks
- Integrated Healthcare Technology Package (iHTP)
- Costing and Financing Tool for Childhood Immunization
- Integrated Health Model
- Pipeline Monitoring and Procurement Planning
- Supply Chain Manager
- ProQ Quantification Software for HIV Tests
- Assessment tool for Laboratory Services and Supply Chains Database (ATLAS)
- Cost Revenue Analysis Tool
- Reproductive Health (RH) Costing Tool
- Planning, Costing and Budgeting Framework (PCBF)
- CORE Plus

Survey: recruitment strategy

Mailing Lists

- IHEA
- IAEN
- healt econ-all (Bruce Hollingsworth)

Regional associations

- African Health Economics and Policy Association
- Asociacion de Economia de la Salud Latinoamerica y Caribe (AES LAC)

Country associations

- Associação Brasileira de Economia da Saúde
- China Health Economics Association
- Colombian Health Economics Association
- Health Economics Association of India
- Indian Health Economics and Policy Association
- Indonesian Health Economics Association
- Nepal Health Economics Association
- Singapore Health Economics Association

- Turkish Health Economics and Policy Association
- Asociacion de Economia de la Salud del Uruguay
- Vietnam Health Economics Association

Modelling Consortia

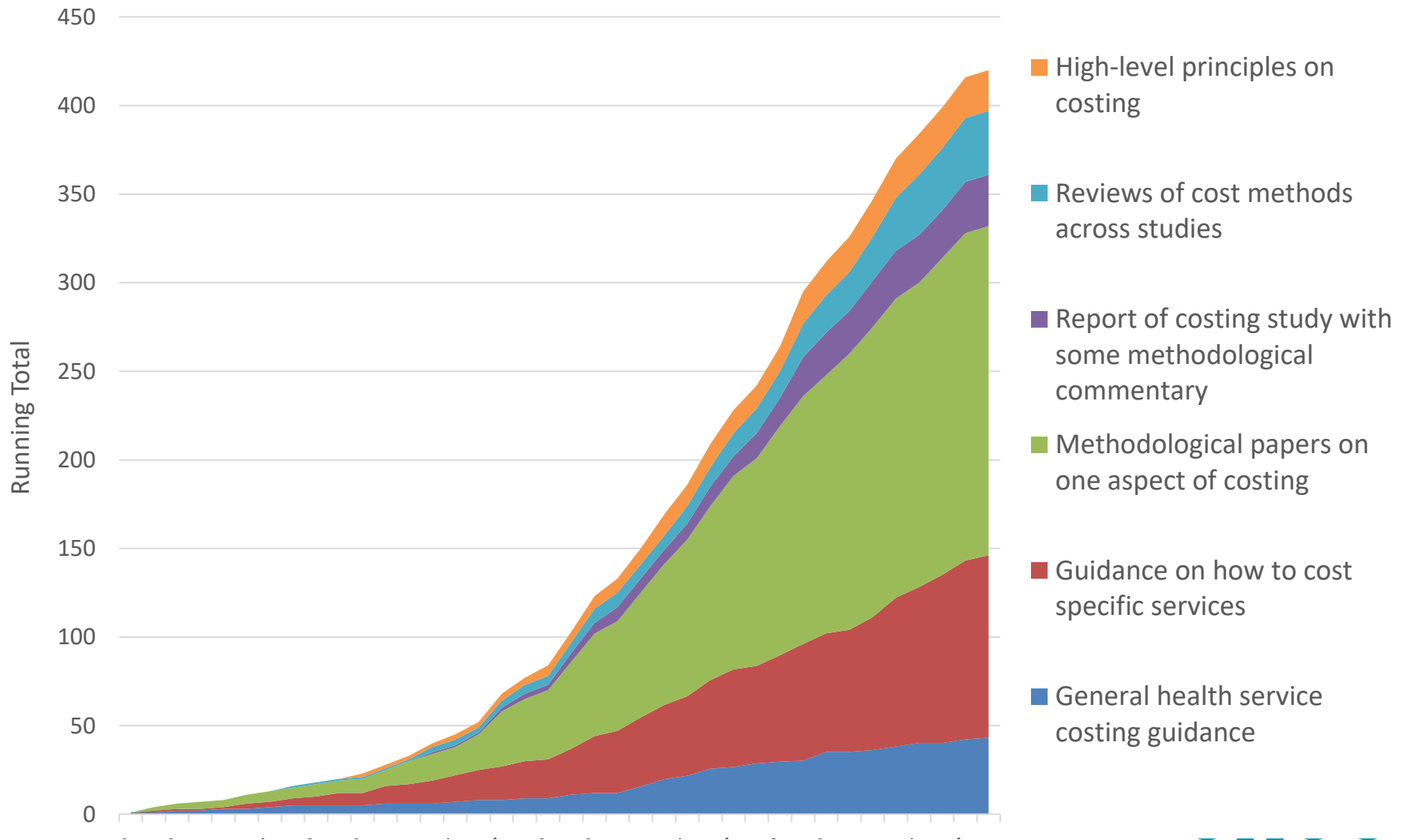
- TB-MAC
- HIV Modelling Consortium

Individual contacts

- GHCC stakeholders
- OneHealth tool consultants
- GFATM consultants
- National Health Accounts reference points (individual emails)

When has guidance been published?

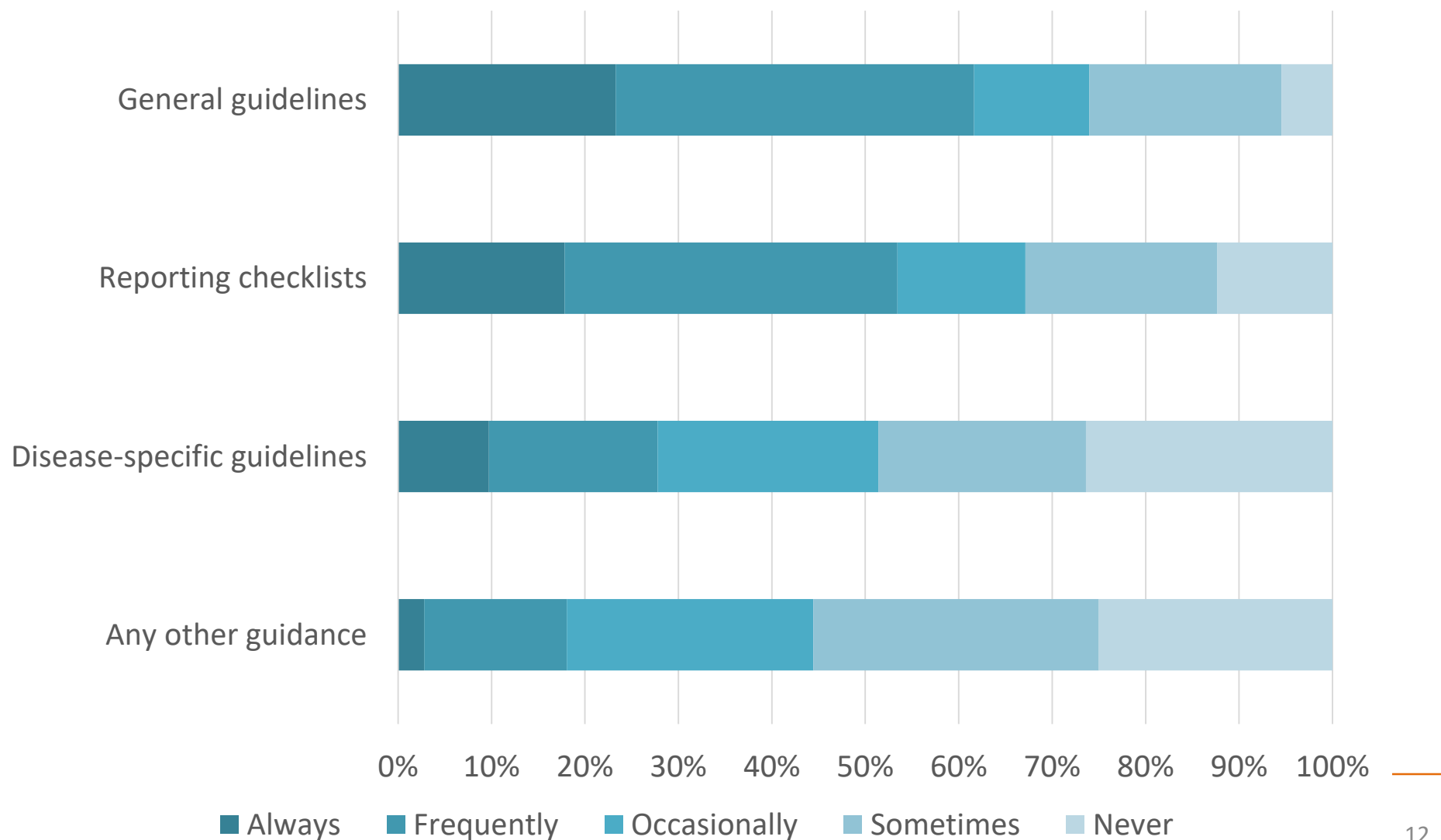
Number of publications with costing guidance



What countries/
areas does the
existing guidance
concern?



Survey: “To what degree do these methodological resources influence your costing methods?”

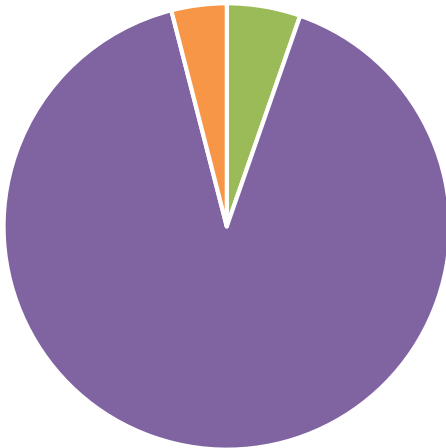


What types of issues are addressed by current guidance?

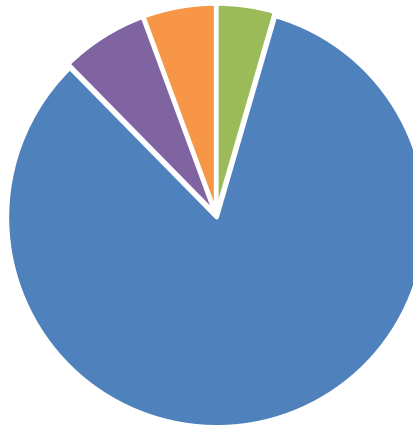


Does any analysis underlie guidance?

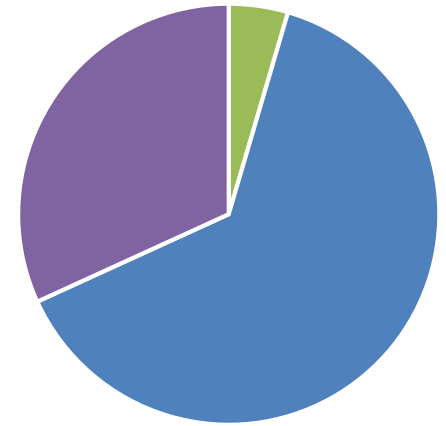
Overview guides to costing



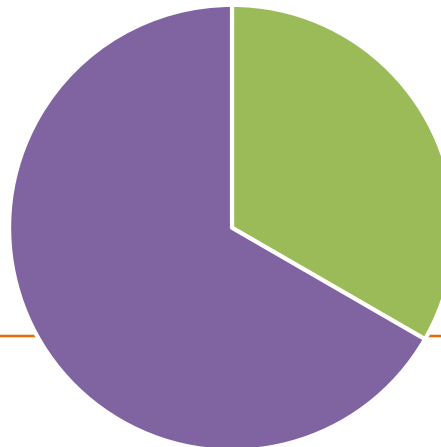
Measuring quantities of resources / visits



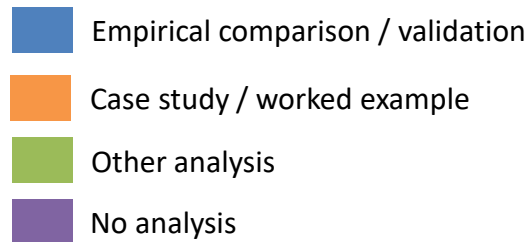
Top-down vs. bottom-up costing



Reporting

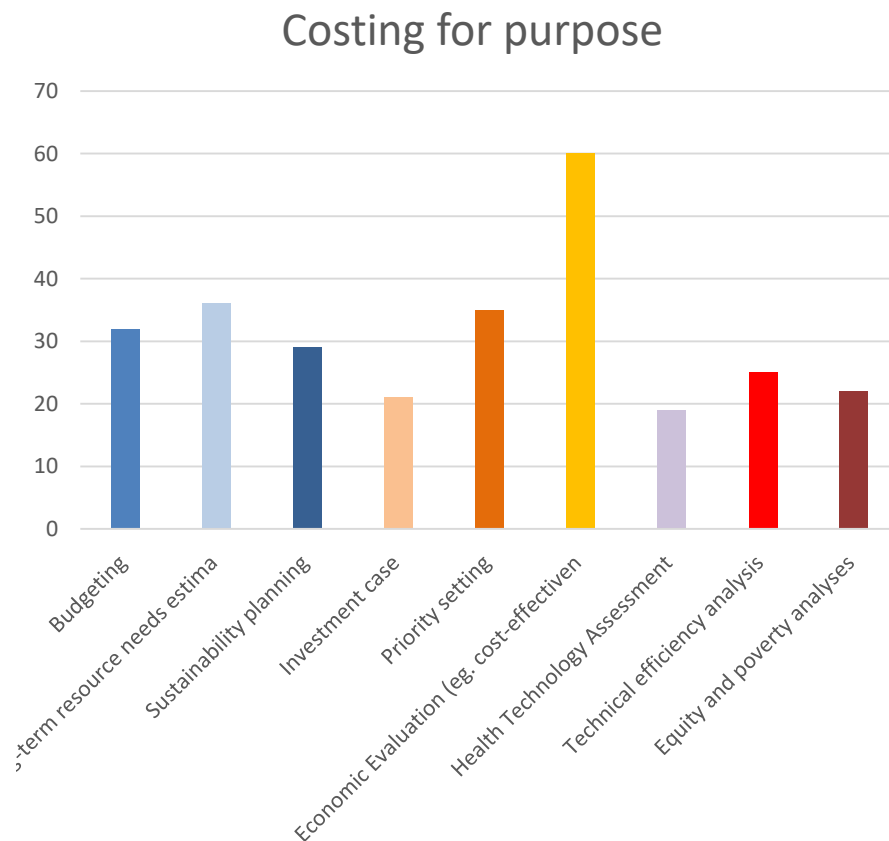


Valuation



Challenge 1 – ‘Principles for purpose’

- Guidance specific for four purposes
 - Economic evaluation and priority setting
 - Medium term planning
 - Budgeting
 - Efficiency analyses
- *Economic vs financial cost*
- *Tolerance for uncertainty may differ*



Challenge 2 – Costs or cost functions?

Why cost functions?

- Cost vary economies of scale and other determinants
- Are unit costs for single services jointly produced possible to estimate?
- Cost functions pivotal in priority setting models

Why not?

- Most studies under limited budget small number of sites

Compromise

- Cost data collection still required to estimate cost functions
- Section explaining cost functions and inference
- Later guidance and review on both mechanistic and empirical approaches

Challenge 3 – Standardising

What is a ‘unit cost’?

Intervention
‘unit’ cost

Cost per patient
episode with
adherence
technology

Above service level unit costs

1 * **Software development** cost (fixed cost)

Q (sites) * **Training** cost per site

Q (sites) * **Device transportation** per site

Q (sites) * **Supervision** cost per site

Direct service unit costs

Q (number of treatment visits) * Cost per
outpatient visit

Q (drugs) * Cost per drug regimen

Q (tests) * Cost per lab test

Q (number of treatment bed-days) * Cost
per inpatient bed-days

Ancillary service unit costs

Q (patients) * **Device kit and supplies** cost
per patient



Other areas we addressed (methods spec)

Encourage improvement in...

- Definitions – geographical, conceptual, categories
- Above service level costs
- Sampling for costing
- Real world vs per protocol/ guidance
- Research costs/ timing
- Dis-aggregated reporting
- **TB specific costing tools**

Study Design

1	The purpose , the population , and the intervention and service/output of the cost estimation should be defined.
2	The perspective of the cost estimation should be defined.
3	The type of unit cost estimated should be defined in terms of economic versus financial , real world versus normative best practice and full versus incremental cost, and whether the cost is net of future cost savings . The type of cost should be justified relevant to purpose.
4	The 'units' in the unit costs for strategies, services, and interventions, should be defined, relevant for the costing purpose, and generalizable.
5	The time horizon should be clearly stated and of sufficient length to capture all costs relevant to intervention and purpose, and consideration should be given to disaggregating costs into separate time periods where they vary over time.

Resource use measurement

- | | |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | The scope of the inputs to include in the cost estimation should be defined and justified relevant to purpose. Where inputs are excluded for pragmatic reasons these should be reported. |
| 7 | The methods for estimating the quantities of inputs should be described, including methods, data sources and criteria for allocating shared costs, and the exclusion of research costs |
| 8 | The sampling frame, method and size should be determined by the precision demanded by the costing purpose and designed to minimize bias. |
| 9 | The selection of the data source and methods for estimating 'units' for unit costs should be described, with potential biases reported in the study limitations. |
| 10 | Consideration should be given to the timing of data collection to minimize recall bias and, where relevant the impact of seasonality and other differences over time. |

Valuation and pricing

11	The sources for price data should reflect the price relevant to purpose and be described for each input in a way that allows for adjustment across settings.
12	Capital costs should be appropriately amortized or depreciated to reflect the expected life of capital inputs
13	Where relevant an appropriate discount rate, inflation, and currency conversion rates should be used and clearly stated.
14	The use and source of shadow prices, for goods where no market price exists, and for the opportunity cost of time should be reported.

Reporting and analysing results

15	Variation in the cost of the intervention by site size/organization, sub-populations, or by other drivers of heterogeneity should be explored and reported.
16	The uncertainty associated with cost estimates should be appropriately characterized.
17	Cost estimates should be communicated clearly and transparently to enable decision-maker(s) to interpret and use the results.

Reporting Checklist

Principle 1 - The purpose of the study, the population, and the intervention and/or service/output being costed should be clearly defined.	
Purpose type:	Economic evaluation, Financial planning, Budget impact analysis, Efficiency Analysis, Other
Relevance for health practice and/or policy decisions:	Free text
Aim of the cost analysis:	Free text
Intended user(s) of the cost estimate:	Free text
Main activities/technologies involved:	Free text
Target population:	As relevant: age, gender, geographical location, clinical indication
Coverage level:	Percentage of target population or sites
Delivery mechanism (e.g. health system level, facility type, ownership, etc.):	As relevant: level of health service, facility type
Epidemiological context (i.e. incidence/prevalence of disease)	As relevant: incidence and/or prevalence
Intervention	Describe production process (e.g. list main activities and key technologies involved in delivering the intervention)

With thanks....

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